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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,420	01/09/2004	Kia Silverbrook	DAM13US	6728
24011	7590	07/14/2006	EXAMINER	
SILVERBROOK RESEARCH PTY LTD 393 DARLING STREET BALMAIN, NSW 2041 AUSTRALIA			MASINICK, MICHAEL D	
			ART UNIT	PAPER NUMBER
			2125	

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/753,420

Applicant(s)

SILVERBROOK, KIA

Examiner

Michael D. Masinick

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3-14,17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,12,14,17 and 18 is/are rejected.
- 7) ☒ Claim(s) 10,11 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This action is responding to applicant's amendments dated 5/1/2006. While previous claims were indicated as allowable, a further search has uncovered new art which reads on the claims as written. This action is non-final.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 4, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,503,831 to Speakman in view of U.S. Patent No. 6,561,825 to McHugh et al.

3. Referring to claims 1, 3, 4, and 17, Speakman shows a drop on demand jet application system for molten metals where 3D products are formed by spraying molten metal (Column 1, lines 45-49). Speakman also shows printing electrical connections (claim 1).

4. Speakman does not show that these electrical connections are printed to at least one inorganic semiconductor incorporated in the product.

5. The McHugh is dedicated to the placement of semiconductor elements (processors) on a circuit board assembly using a vacuum pick up cap to place the item exactly where it is desired

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to be placed in an automated fashion. Vacuum systems and other “object incorporation devices” are well known systems for placement of electrical components.

6. It would have been obvious to one of ordinary skill at the time the invention was made to use the vacuum insertion device of McHugh to insert inorganic semiconductor devices into the electrical device forming system of Speakman because object incorporation devices make the process of adding a pre-fabricated semiconductor an automated task and prevent human error associated with product insertion.

7. It is noted that the wording of the claim currently can be read to mean that a semiconductor device is inserted into a circuit board and the electrical connections are then printed. There is no recitation of 3D inkjet printing, printing of multiple layered objects, or other recitation that this is anything but a simple case of printing an electrical line to an inserted semiconductor.

8. Claim 5-9, 12, 14, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,503,831 to Speakman in view of U.S. Patent No. 6,561,825 to McHugh et al as shown above and further in view of U.S. Patent No. 5,594,652 to Penn.

9. With reference to what has been shown above, Speakman in view of McHugh does not show where the system prints products layer by later and prints at at least part of each of multiple layers simultaneously.

10. Penn is a computer controlled system for 3D printing where part of each layer is printed simultaneously. Penn also shows that metal can be used as the printing “liquid” (Column 9, line 15).

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11. It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the lessons of Penn to print a 3D object layer by layer using the electrical concepts set forth in Speakman in view of McHugh because 3D printing allows for rapid production of objects and, according to Penn, “many other materials and combinations are possible, limited only by the imagination of those skilled in the art” (Column 11, lines 40-49).

12. Referring to claim 6, Penn shows a plurality of printheads (Column 6, lines 51-65).

13. Referring to claim 7, Penn shows wherein each layer is defined by a plurality of voxels arranged in a regular array and wherein the voxels of each layer are printed so as to be offset by half a voxel relative to the voxels of adjacent layers in a first direction, a second direction perpendicular to the first direction or both the first and second directions (“stacked” – column 4, lines 3-28). Examiner notes that whenever an object is built (such as a brick building, or stacking apples in the supermarket) they are always built with an offset as described.

14. Referring to claim 8 and 9, Penn shows wherein the printheads are configured to enable printing of at least two different materials in at least one layer and wherein the printheads are configured such that at least one of the layers may be printed with a first set of materials and at least one other of the layers may be printed with a second set of materials, and wherein the first and second sets are not the same (Top of column 3).

15. Referring to claim 12, Penn shows wherein the system includes semiconductor memory and wherein data defining at least one layer is stored in the semiconductor memory (Column 9, “microprocessor control system”).

16. Referring to claim 14, Penn shows including a least two printheads, a first one of the printheads printing a first material and a second one of the printheads printing a second material,

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the first material being cured by a first method and the second material being cured by a second method and wherein the first and second methods are different (Column 3).

17. Referring to claim 18, Penn shows including a least two printheads, wherein a first printhead is actively maintained at a first temperature and a second printhead is actively maintained at a second temperature (Column 11, lines 40-49).

### *Allowable Subject Matter*

18. Claims 10, 11, and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

19. Applicant is reminded of their duty to disclose any knowledge of prior art that may be relevant to the claims at issue, especially claims indicated as allowable subject matter.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael D. Masinick whose telephone number is (571) 272-3746. The examiner can normally be reached on Mon-Fri, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'MDM', is positioned above the printed name.

Michael D Masinick  
Examiner  
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MDM, July 11, 2006